

## CLAIMS

### WHAT IS CLAIMED IS:

5 1. A method comprising:

    determining whether a number of buffers allocatable to a queue pair is greater than zero;

    deciding whether a number of buffers allocated to an operation type is less than a maximum; and

10     allocating a buffer to the queue pair if the queue pair requests the buffer for an operation having the operation type and the determining and the deciding are true.

2. The method of claim 1, further comprising:

    receiving a validate request associated with a data transfer that uses the buffer.

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3. The method of claim 2, further comprising:

    determining whether a requester of the data transfer matches the queue pair.

4. The method of claim 2, further comprising:

20     determining whether a type of the data transfer is valid for the operation type.

5. The method of claim 1, wherein the determining further comprises:

    determining whether the number of buffers allocatable to the queue pair is greater than a remaining size of the operation.

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6. The method of claim 1, wherein the operation type is a transmit.

7. The method of claim 1, wherein the operation type is a receive.

30 8. An apparatus comprising:

means for determining whether a number of buffers allocatable to a queue pair is greater than zero;

means for deciding whether a number of buffers allocated to an operation type is less than a maximum; and

5 means for allocating a buffer to the queue pair if the queue pair requests the buffer for an operation having the operation type and the means for determining and the means for deciding are true; and

means for receiving a validate request associated with a data transfer that uses the buffer.

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9. The apparatus of claim 8, further comprising:

means for determining whether a requester of the data transfer matches the queue pair.

15 10. The apparatus of claim 8, further comprising:

means for determining whether a type of the data transfer is valid for the operation type.

11. The apparatus of claim 8, wherein the means for determining further comprises:

20 means for determining whether the number of buffers allocatable to a queue pair is greater than a remaining size of the operation.

12. The apparatus of claim 8, wherein the operation type is a transmit.

25 13. The apparatus of claim 8, wherein the operation type is a receive.

14. The apparatus of claim 8, further comprising:

means for deallocated the buffer if a requestor matches the queue pair.

30 15. An adapter comprising:

a pool of a plurality of entries; and

a controller that allocates a plurality of buffers from the plurality of entries in response to requests from a plurality of queue pairs, validates the plurality of buffers for a plurality of data transfers, and deallocates at least one of the plurality of buffers in response to a shutdown of an associated at least one of the plurality of queue pairs.

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16. The adapter of claim 15, wherein the controller further stores status in each of the plurality of entries, wherein the status comprises an indication of whether each of the respective plurality of buffers is to be used for a master or a target operation.

10 17. The adapter of claim 15, wherein the controller further stores status in each of the plurality of entries, wherein the status comprises an indication of whether each of the respective plurality of buffers is to be used for a RDMA or a send operation.

15 18. The adapter of claim 15, wherein the controller further stores status in each of the plurality of entries, wherein the status comprises an indication of whether each of the respective plurality of buffers is to be used for a read or a write operation.

19. The adapter of claim 16, wherein the controller further validates the plurality of buffers based on the status.

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20. The adapter of claim 17, wherein the controller further validates the plurality of buffers based on the status.